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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,386	03/26/2004	Herbert Hartgrove	03-336	8629
62753	7590	04/17/2008		
VALERIE CALLOWAY CHIEF INTELLECTUAL PROPERTY COUNSEL POLYMER GROUP, INC. 9335 HARRIS CORNERS PARKWAY SUITE 300 CHARLOTTE, NC 28269			EXAMINER STEELE, JENNIFER A	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			04/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/810,386

Applicant(s)

HARTGROVE ET AL.

Examiner

JENNIFER STEELE

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Oath/Declaration

1. The Affidavit under 37 CFR 1.132 filed 1/3/2008 is sufficient to overcome the rejection of claim 5-12 based upon the 35 USC 103(a) rejection with respect to the reference to Kieruff. New grounds of rejection is presented in this Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claim 5-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Mater et al (WO 2003023108 referenced as US 2004/0198125) in view of Black (US 7,008,889) in further view of Kelly (US 2002/0004348). Mater teaches nonwoven flame barrier fabrics (ABST). Mater teaches preferred fiber blends are designed to withstand extended periods of time exposed to flame (ABST). Mater teaches that optionally, natural fibers can be included to improve product

Art Unit: 1794

economics (ABST). Mater teaches categories of fibers with respect to flame resistance and properties. Mater teaches category 1 fibers that are inherently fire resistant and resistant to shrinkage by a direct flame. Category 1 fibers include melamines, meta-aramids, para-aramids, polyamideimides [0068]. Category 2 fibers are made from polymers with halogenated monomers and include modacrylics [0072]. Category 3 fibers include low melt binders. Category 4 fibers include the natural fibers such as cotton, wool, silk. Category 5 fibers include non-flame retardant fibers that are synthetic and Category 6 fibers are halogenated binder resins [0075-0086]. Mater teaches blends of fibers, preferably to combine category 1 and 2 (para amids and modacrylics) because of synergistic charring effect [0094]. Mater teaches that one layer can be designed to provide emphasis of category 1 fibers and another layer to provide emphasis of category 2 fibers. Mater teaches percentages of the categories of fibers, category 1: 10-85% more preferably 30-60%, category 2: 10-85%, more preferably 30-60%, category 3: 0-30%, more preferably 10-20%, category 4: 0-40%, more preferably 10-20%, category 5: 0-40%, more preferably 10-20%, category 6: 0-40%, more preferably 10-20% [0087-0092]. Mater teaches blending of flame retardant fibers overcome disadvantages of previous fibers for example, hydroentangled nonwoven spunlace flame barriers containing significant amounts of p-aramid fibers impart a yellow color [0014]. Mater teaches a layered quilting panel that has a 1st, 2nd, 3rd, 4th and 5th layer of various blends of flame retardant fibers in the examples [0122-0135]. Mater differs from the current application and does not teach a lyocell fiber and Mater differs from the current application and does not teach hydroentangling layers together.

Kelly teaches a hydroentangled nonwoven flame-retardant fabric consisting of a blend of melamine and aramid fibers. Kelly teaches a three dimensionally image transfer device for

Art Unit: 1794

formation of the fabric (ABST). Kelly teaches this provides a fabric with air permeability and thermal protective properties. Kelly specifically teaches that while heat and flame resistant properties of aramid fibers are well known, fabrics produced using aramid fibers a heavy in weight and low in air permeability (col 2, lines 54-64). Kelly teaches blending the aramid fibers with melamine fibers and use of three dimensional image transfer device to overcome the disadvantages of aramid fibers while still producing a flame retardant fabric.

Black teaches a hydroentangled imaged nonwoven fabric comprising lyocell fibers (Title). Black teaches lyocell is a natural cellulosic fiber and that is sold under the trade name TENCEL and is superior to other cellulose including cotton and rayon (col. 2, lines 45-48). Black teaches a nonwoven fabric for home use applications such as “top of bed” applications (claim 4) wherein the fabric provides the desired softness and drapeability (col. 2, lines 65-67). Black teaches blends of lyocell fibers with binder fiber and polyester fibers and teaches two layers of batt that are hydroentangled (col. 6, lines 23-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ blends of fire resistant fibers with natural fibers and layers with differing blends as taught by Mater while substituting a lyocell fiber for a natural cotton fiber as taught by Black motivated to produce a flame retardant fabric. It further would have been obvious to employ the technique hydroentangling the fibers to produce a flame retardant fabric suitable for use bedding and mattress covers as taught by Black and Kelly.

As to claims 13 and 14, Mater teaches high loft nonwoven layers that have basis weights in the range of 75 to 600 gsm which is equal to 2.2 oz/yd^2 to 17 oz/yd^2 . Mater teaches the varying the basis weights and thickness of the highloft layers to achieve the desired fabric with

required flame barrier effect [0114]. Mater teaches the embodiments wherein each of the layers is in the range of 75 to 600 gsm where one layer has a basis weight of 153 gsm and the other layer has a basis weight of 229 gsm. Therefore it would have been obvious to employ a two layers, one with a basis weight of 2 oz/yd² and the other with a basis weight of 4 oz/yd².

Response to Arguments

3. Applicant's arguments with respect to claim 5-14 have been considered but are moot in view of the new ground(s) of rejection. The Declaration under 37 CFR 1.132 was sufficient to overcome the reference to Kierulff and new grounds of rejection with respect to Mater in view of Kelly and Black presented in this Office Action. It is noted that the cellulosic fiber of Kierulff is not equated with the lyocell of the current application. The reference to Black is presented to show that lyocell can be used as a substitute for cotton and other cellulosic fibers and therefore a finding that one of ordinary skill in the art could of substituted lyocell for the cotton fiber of Mater with a reasonable expectation of success.
4. Applicant's arguments that Mater teaches away from the yellowing problem is not persuasive. Mater teaches that blending of flame retardant fibers overcome disadvantages of previous fibers for example, hydroentangled nonwoven spunlace flame barriers containing significant amounts of p-aramid fibers impart a yellow color [0014]. Mater's teachings of blending fibers and layering the fabric with different blends of flame retardant fibers presents a finding that one of ordinary skill in the art could of employed blends and layers with a reasonable expectation of success in producing a soft, non-yellowing yet flame retardant fabric.

5. Applicant's arguments that Kelly differs from the current application and does not teaches a fabric with layers that are hydroentangled and does not teach a blend with lyocell fibers are not persuasive. Kelly is relied upon for teaching that the method of hydroentangling and forming a three dimensional fabric pattern with flame retardant fibers is known in the art. Mater also teaches hydroentangling as a method of producing a nonwoven fabric. Black is presented in this Office Action and Black teaches hydroentangling two layers of batt fibers. Mater, Kelly and Black present findings that hydroentangling is a known method of mechanically forming nonwovens and layers of nonwovens.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

4/10/2008